

ABSTRACT OF THE DISCLOSURE

A metallic filter for filtering a fluid includes a filter element. A structure of the filter element is strengthened by a heat treatment after assembly to resist ΔP changes in the fluid to minimize irreversible compression and degradation of the filter element due to the partial collapse of the filter element from a rise in the ΔP of the fluid passing through the filter element. Preferably, the filter element includes a non-woven, metallic mat. Also, the filter element include at least two metallic support screens, and the non-woven metallic mat is sandwiched between the at least two metallic support screens. In addition, the filter element is preferably formed from a material selected from stainless steel titanium, nickel, Carpenter 20 Cb-3, Hastelloy R and Hastelloy X. Further, the filter element is pleated and formed to surround a support member, and the heat treatment after assembly occurs after pleating and forming. In addition, the non-woven metallic mat includes metallic fibers, and is also heat treated before assembly to provide a first bonding of the metallic fibers.